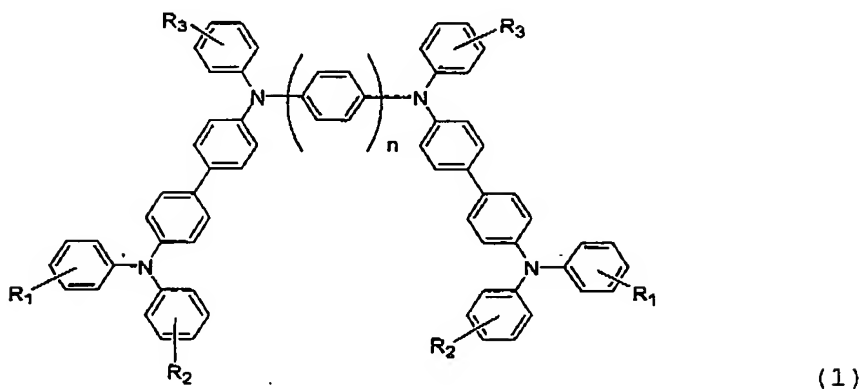


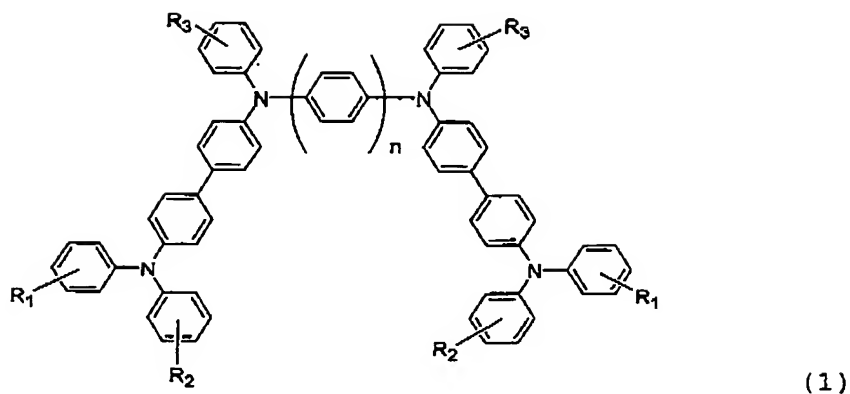
Claims

1. A tetramine compound represented by the following general formula (1):



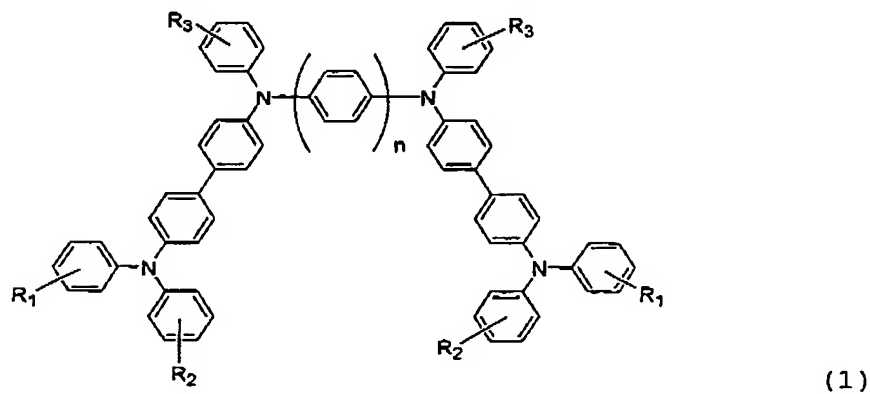
wherein R1, R2 and R3, which may be the same or different, each represents a hydrogen atom, a tertiary alkyl group having 4 to 8 carbon atoms, an unsubstituted aryl group or an aryl group substituted with a tertiary alkyl group having 4 to 8 carbon atoms, and n represents 3 or 4.

2. An organic EL element material represented by the following general formula (1):



wherein R1, R2 and R3, which may be the same or different, each represents a hydrogen atom, a tertiary alkyl group having 4 to 8 carbon atoms, an unsubstituted aryl group or an aryl group substituted with a tertiary alkyl group having 4 to 8 carbon atoms, and n represents 3 or 4.

3. An organic EL element containing a tetramine compound represented by the following general formula (1):



wherein R1, R2 and R3, which may be the same or different, each represents a hydrogen atom, a tertiary alkyl group having 4 to 8 carbon atoms, an unsubstituted aryl group or an aryl group substituted with a tertiary alkyl group having 4 to 8 carbon atoms, and n represents 3 or 4.

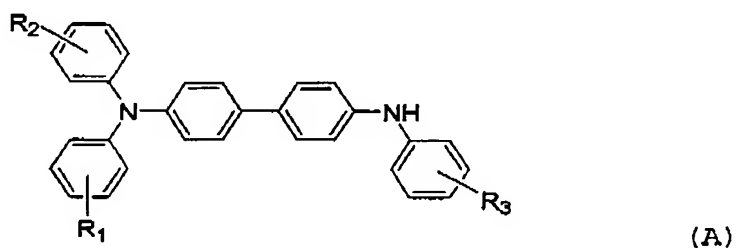
4. The organic EL element according to claim 3, which comprises an anode, a hole transport layer, a light emitting layer, an electron transport layer and a cathode laminated sequentially on a substrate, or comprises an anode, a hole transport layer, an electron transport layer and a cathode laminated sequentially on a substrate, wherein either the hole transport layer or the electron transport layer has a light emitting function.

5. The organic EL element according to claim 4, wherein the hole transport layer contains the tetramine compound represented by general formula (1) and at least one other hole transport material.

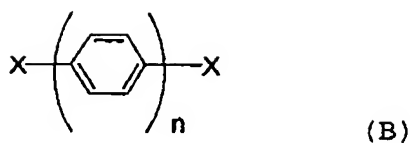
6. The organic EL element according to claim 4 or 5, which has a constitution comprising an anode, a hole transport layer, an electron transport layer and a cathode laminated sequentially on a substrate, wherein the electron transport layer has a light emitting function.

7. The organic EL element according to claim 4 or 5, which has a constitution comprising an anode, a hole transport layer, an electron transport layer and a cathode laminated sequentially on a substrate, wherein the hole transport layer has a light emitting function.

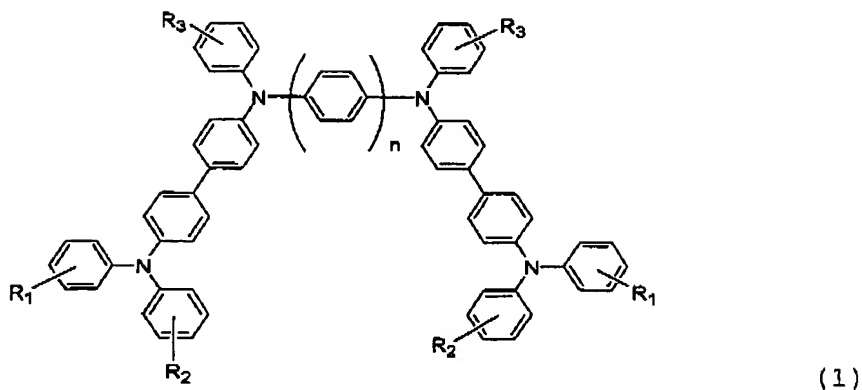
8. A method for producing a tetramine compound represented by general formula (1) shown below, which comprises the step of conducting condensation reaction of a triphenyldiaminobiphenyl compound represented by the below-shown general formula (A) and a dihalogen compound represented by the below-shown general formula (B):



wherein R1, R2 and R3, which may be the same or different, each represents a hydrogen atom, a tertiary alkyl group having 4 to 8 carbon atoms, an unsubstituted aryl group or an aryl group substituted with a tertiary alkyl group having 4 to 8 carbon atoms, and n represents 3 or 4;



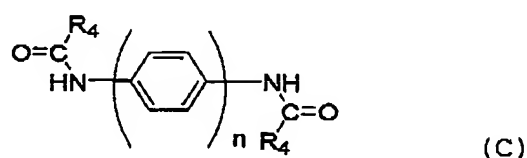
wherein X represents a halogen atom, and n represents 3 or 4;



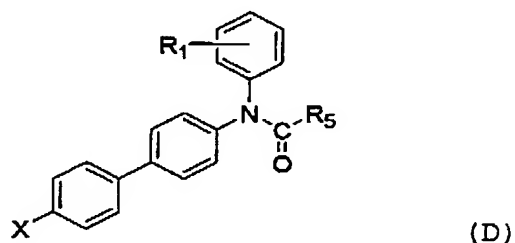
wherein R1, R2 and R3, which may be the same or different, each represents a hydrogen atom, a tertiary alkyl group having 4 to 8 carbon atoms, an unsubstituted aryl group or an aryl group substituted with a tertiary alkyl group having 4 to 8 carbon atoms, and n represents 3 or 4.

9. A method for producing a tetramine compound represented by general formula (2) shown below, which comprises conducting condensation reaction of a diamino compound represented by the below-shown general formula

(C) and a halogen compound represented by the below-shown general formula (D), hydrolyzing a condensation product, and then, further conducting condensation reaction with a halogen compound represented by the below-shown general formula (E):

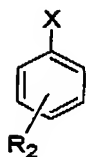


wherein R4 represents a substituted or unsubstituted alkyl group or a substituted or unsubstituted aryl group, and n represents 3 or 4;



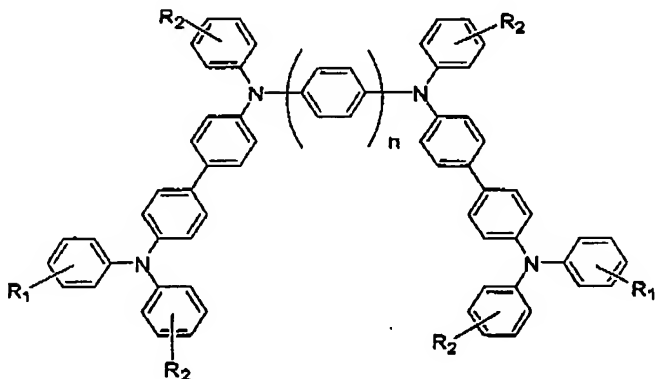
wherein R1 represents a hydrogen atom, a tertiary alkyl group having 4 to 8 carbon atoms, an unsubstituted aryl group or an aryl group substituted with a tertiary alkyl group having 4 to 8 carbon atoms, R5 represents a substituted or unsubstituted alkyl group or a substituted

or unsubstituted aryl group, and X represents a halogen atom;



(E)

wherein R2 represents a hydrogen atom, a tertiary alkyl group having 4 to 8 carbon atoms, an unsubstituted aryl group or an aryl group substituted with a tertiary alkyl group having 4 to 8 carbon atoms, and X represents a halogen atom;



(2)

wherein R1 and R2, which may be the same or different, each represents a hydrogen atom, a tertiary alkyl group having 4 to 8 carbon atoms, an unsubstituted aryl group or

an aryl group substituted with a tertiary alkyl group having 4 to 8 carbon atoms, and n represents 3 or 4.